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MARSHALL STAR

In This Week's Star ⊟ (Click to Expand)

NASA Center Directors Visit Marshall for All-Hands Forum

By Rick Smith

Marshall Space Flight Center workers got a unique opportunity to converse with NASA leaders Nov. 9 when seven agency field center directors took the Morris Auditorium stage in Building 4200. They praised the team's energy and hard work in support of the many cross-center activities essential to NASA achieving mission success.

Image right: A member of the Marshall Center team asks a question of the NASA center directors during the Nov. 9 all-hands meeting. (NASA/MSFC/Emmett Given)

Marshall Center Director Robert Lightfoot was joined by Bob Cabana, director of Kennedy Space Center; Mike Coats, director of Johnson Space Center; Ray Lugo, director of Glenn Research Center; David McBride, director of Dryden Flight Research Center; Lesa Roe, director of Langley Research Center; and Patrick Scheuermann, director of Stennis Space Center.

The joint visits -- Lightfoot's idea, according to several of the directors -- give them a forum to help remove perceived communication barriers between centers and to urge organizations to pursue new business opportunities that will safely and cost-effectively accomplish the nation's goals for science, engineering and space exploration.

Image left: Among the NASA field center directors participating in the all-hands are, from left, Stennis Center Director Patrick Scheuermann, Dryden Center Director David McBride, Kennedy Center Director Bob Cabana and Marshall Center Director Robert Lightfoot. (NASA/MSFC/Emmett Given)

In addition, Lugo noted, the visits are an opportunity to remind space program workers from Virginia to California "that we all bleed NASA blue."

"It's the people who make NASA such a great place to work," Cabana agreed. "Give them the resources and they go out and excel."

"You see the NASA logo and it's always the same resiliency, the same incredible effort to get things done," Scheuermann added.

Image right: Johnson Space Center Director Mike Coats, second from right, talks about NASA's future during the all-hands meeting. He's joined by, from left, Marshall Center Director Robert Lightfoot, Langley Center Director Lesa Roe and Glenn Center Director Ray Lugo. (NASA/MSFC/Emmett Given)

All the directors stressed the need to extend that camaraderie even further -- to bolster relationships inside and outside NASA in order to enhance and promote its mission in space. They talked about recent downsizing of the workforce; tighter fiscal responsibility at the mission, program and project levels; and the importance of affordability in planning and executing every new mission.

"We need to work as a team and understand what each part of the team can do if we're going to fulfill our mission," Coats said.

Smith, an AI Signal Research Inc. employee, supports the Office of Strategic Analysis & Communications.

› Back to Top

Space Launch System Office Provides New U.S. Launch Capability With Advanced Propulsion, Heavy-Lift Vehicle

Design

By Amie Cotton

May (NASA/MSFC)

The Space Launch System Office, a new program office established as part of the Marshall Space Flight Center's reorganization, will design, develop, test and deliver the nation's next human-rated flagship space launch vehicle, one capable of lifting up to 130 metric tons of crew, cargo and supplies to low-Earth orbit and beyond.

Designed to be flexible for crew or cargo missions, the heavy-lift vehicle will be safe, affordable and sustainable, to continue America's journey of discovery from the unique vantage point of space. It also will back up commercial and international partner transportation services to the International Space Station.

Singer (NASA/MSFC)

The vehicle's design will maximize efficiency and minimize cost by leveraging 50 years of human spaceflight experience while using evolutionary advancements in launch vehicle design. One of its primary payloads -- the Orion spacecraft -- will carry up to four crew members, provide emergency abort capability during liftoff and safely return them to Earth after each mission.

Flexible and evolvable, the vehicle will enable missions to locations including the Earth's moon; near-Earth asteroids; Mars and its moons, Phobos and Deimos; Lagrange points -- one of five orbital positions around two larger objects where a spacecraft will remain stationary due to the larger objects' gravitational pull; and geosynchronous Earth orbit -- points in orbit where a spacecraft completes one revolution around the Earth precisely every 24 hours and seems to remain in a fixed point in the sky.

Lyles (NASA/MSFC)

The Space Launch System Program is a part of the Explorations Systems Development Division of NASA's Human Exploration & Operations Mission Directorate. The office is working closely with Johnson Space Center's Orion Program as well as the 21st Century Ground Support Program at Kennedy Space Center to provide spacecraft, payload and launch operations integration.

The office, which became operational Aug. 28, is led by Todd May, SLS program manager. He is assisted by a deputy, Jody Singer and chief engineer Garry Lyles. Rick Burt is the chief safety officer and Jerry Cook is serving as the Program Planning & Control Office manager for the program.

Element managers include Alex Priskos, Boosters Element manager; Brian Matisak, Ground Operations Liaison manager; Mike Kynard, Liquid Engines Element manager; Fred Bickley, Advanced Development manager; Tony Lavoie, Stages Elements manager; David Beaman, Spacecraft & Payload Integration manager and Lewis Wooten, Avionics Element manager.

The Space Launch System's driving objectives are safety, affordability and

sustainability. To maintain affordability, the vehicle design will maximize use of common elements, existing assets, infrastructure and workforce. Now in the design stage, the initial vehicle will lift 70 metric tons and be 320 feet tall. Its first flight is scheduled in 2017. The vehicle design will include a first stage powered by existing RS-25 engines, formerly used as space shuttle main engines, flanked by solid rocket boosters; core stage; interstage; and the Orion spacecraft and its launch abort system.


Burt (NASA/MSFC)


Cook (NASA/MSFC)

It will evolve to lift 130 metric tons and be 389 feet tall post-2021, allowing it to deliver large-volume science missions and payloads, as well as Orion and the provisions for long-duration missions. The evolved vehicle design will include a first stage, powered by RS-25 expendable engines flanked by solid or liquid rocket boosters; core stage; upper stage with J-2X engine; and payload fairing.

The Space Launch System will be the most capable U.S. launch vehicle to date, providing more power than the Saturn V rocket that carried Apollo astronauts to the moon. The vehicle will provide a national heavy-lift capability for international missions with large payload capabilities and mass requirements.

The program recently completed a Systems Requirements Review Checkpoint in October to verify the program is on track toward a February 2012 NASA-led Systems Requirements Review to evaluate vehicle designs based on the primary design criteria, or Level 1 requirements, set by the agency. In addition, the program is expected to release a Request for Proposal to industry for advanced booster development in December to design, develop, test and evaluate a new liquid or solid booster capability for the United States. In fiscal year 2013, a Request for Proposal to industry is scheduled for the spacecraft and payload adapter and fairing. The J-2X upper stage engine, built by Pratt & Whitney Rocketdyne of Canoga Park, Cailf., is undergoing testing at Stennis Space Center and three five-segment development solid rocket motors have been tested by Alliant Techsystems Inc., or ATK, at its test facility in Promontory, Utah.

Cotton, an AI Signal Research Inc. employee, supports the Office of Strategic Analysis & Communications.

› Back to Top

An Interview with Todd May, Program Manager of the Space Launch System Office at Marshall

The Marshall Star recently spoke with Todd May about his new leadership responsibility as manager of the Space Launch System Program -- one of the new offices established during the recent Marshall Space Flight Center reorganization -- to design the nation's next generation space vehicle capable of going beyond low-Earth orbit.

Image right: Todd May, manager of the Space Launch System Program Office (NASA/MSFC)

The Space Launch System Program Office at the Marshall Center is responsible for the design, development, testing and evaluation of a new heavy-lift launch vehicle. Can you provide details on the scope of these activities and how the office will operate?
The scope has both a strategic and tactical component. Our job is to field a 70-ton vehicle to launch humans and cargo farther than we have ever been before. We will also field a 130-ton-class rocket capable of taking humans to Mars.

As for operations, we are a lean and efficient organization focused on our first flight in 2017.

What is your vision for the program and what do you see as your biggest challenge to realize it?
Our program will embrace innovation and creativity to field a next-generation rocket in a safe, affordable and sustainable way. As [Marshall Center Director] Robert [Lightfoot] has said, our team is humbled and honored to have the opportunity to pen the next chapter of space exploration. We also need to embrace innovation and creativity in how we operate based on the context we find ourselves in: managing with constrained fiscal budgets and operating without the space shuttle.

I think our biggest challenge is to learn how to best operate in this new context. We have an inertia that wants to continue the way we always succeeded in the past. To be successful in the future, we will need to overcome that inertia and adjust our vector.

What is your management philosophy?
I want our organization to be a learning organization -- always looking for innovations and ways to improve. I believe in excellence and developing trust among the team. I believe in a strong, lean team that will go play their position in the field and be willing to listen to each other.

I read a Steve Jobs quote recently: "I don't hire people to tell them what to do, I hire people to tell me what to do." I really resonate with that sentiment, especially given that my background is not rocket science.

My management philosophy is really embodied in our SLS norms:
We will:

- Assume positive intent -- keep short accounts.
- Play our position and understand the importance of all positions.
- Respect family/work life balance -- ours' and others'.
- Support and promote the SLS team and be passionate about team goals.
- Have a servant's heart. Think about how I can serve the team.
- Be open-minded to creative and daring ideas. Actively listen.
- Focus on results. Do the important things with a sense of urgency.

- Thoughtfully plan, then do what we say we will do.
- Be hard on issues, not the people.
- Make decisions at the right time involving the right people.
- Pledge to do imperfect work.

The Space Launch System Office's key tenets are safety, affordability and sustainability. How do you plan to practically integrate those tenets with the design of the vehicle?
Our team is looking at various strategies for affordability and sustainability to continue to grow the remainder of the exploration enterprise: Chasing cost versus performance; creating robust margins; exercising lean insight/oversight; and assuming personal accountability. Obviously, safety is paramount. In the configuration we have, it's not going to be like the shuttle where we're flying five to seven times a year. We may get an opportunity once a year, maybe at peak two a year, and we want it to be safe.

What kind of collaboration with other Marshall Center organizations do you anticipate?
The Engineering Directorate will be leading our Systems Engineering & Integration efforts as well as design the vehicle software in-house. We've been working closely with the Safety & Mission Assurance Directorate to achieve our safety goals and objectives.

In addition, our team has been working closely with the Office of Procurement and the Office of the Chief Counsel with planning as we've modified existing contracts and prepare to issue Requests for Proposals for new SLS work. We also work closely with the Office of Strategic Analysis and Communications to develop products to communicate our plans both externally and internally.

You have served the agency in a variety of leadership and program and project management roles spanning all of NASA's space-related mission directorates. How has your previous experience prepared you to be successful in this position? What "lesson learned" in your career do you bring to this new position?
One thing about working in a wide variety of assignments, is that you can see patterns emerge across those various programs and projects. You also begin to appreciate the differences in how various organizations and cultures operate and solve problems. You develop an intuition about how to solve problems in any context. Logic is always necessary, but on particularly complex problems, intuition can really help guide you to the best solution.

Amie Cotton, an AI Signal Research Inc. employee supporting the Office of Strategic Analysis and Communications, compiled this report.

› Back to Top

NASA's New Upper Stage Engine Passes Major Test
NASA news release

NASA conducted a successful 500-second test firing of the J-2X rocket engine on Nov. 9, marking another important step in development of an upper stage for the heavy-lift Space Launch System, or SLS.

Image left: The J-2X engine roars to life during a 500-second test firing at NASA's Stennis Space Center A-2 test stand Nov. 9. (NASA/SSC)

SLS will carry the Orion spacecraft, its crew, cargo, equipment and science experiments to destinations in deep space. SLS will be safe, affordable and sustainable to continue America's journey of discovery from the unique vantage point of space.

"The J-2X engine is critical to the development of the Space Launch System," Dan Dumbacher, NASA's deputy associate administrator for exploration systems development, said after the test at NASA's Stennis Space Center. "Today's test means NASA is moving closer to developing the rocket it needs if humans are to explore beyond low-Earth orbit."

Data from the test will be analyzed as operators prepare for additional engine firings. The J-2X and the RS-25D/E engines for the SLS core stage will be tested for flight certification at Stennis. Both engines use liquid hydrogen and liquid oxygen propellants. The core stage engines were developed originally for the space shuttle.

"The J-2X engine team and the SLS program as a whole are extremely happy that we accomplished a good, safe and successful test today," said Mike Kynard, Space Launch System Engines element manager at the Marshall Space Flight Center. "This engine test firing gives us critical data to move forward in the engine's development."

Stennis has tested engines that carried Americans to space in both the Apollo and Space Shuttle programs. The J-2X engine is being developed for Marshall by Pratt & Whitney Rocketdyne of Canoga Park, Calif.

"We look forward to adding to the legacy as we fulfill our responsibility to test engines that will power America's next launch vehicle," said Stennis Director Patrick Scheuermann.

For more information about NASA exploration, visit http://www.nasa.gov/exploration.

For information about NASA's Space Launch System, visit http://www.nasa.gov/sls.

› Back to Top

Expedition 30 Crew Successfully Launches to Space Station; Marshall Team Aids in Soyuz Investigation
By Lori Meggs

The Expedition 30 crew of NASA astronaut Dan Burbank, and cosmonauts Anton Shkaplerov and Anatoly Ivanishin, launched on a mission to the International Space Station Nov. 13 from the Baikonur Cosmodrome in Kazakhstan.

Image right: The Soyuz TMA-22 rocket is seen at the Soyuz launch pad during a snow storm the morning of the launch of Expedition 29 on Nov. 13 to the International Space Station at the Baikonur Cosmodrome in Kazakhstan. (NASA/Carla Cioffi)

Burbank, Shkaplerov and Ivanishin docked their Soyuz spacecraft with their new home Nov. 15, and joined Expedition 29 Commander Mike Fossum of NASA and Flight Engineers Satoshi Furukawa of the Japan Aerospace Exploration Agency and Russian cosmonaut Sergei Volkov. Fossum will hand over command of the station to the new crew within four days.

Fossum, Furukawa and Volkov launched in June and are scheduled to return to Earth in their Soyuz spacecraft at 7:24 p.m. CST, Nov. 21. Expedition 30 begins when the current crew undocks, leaving Burbank in command. A formal change of command ceremony is planned for Nov. 20 and will be aired on NASA TV during a video file Nov. 21 at 8 a.m.

This was the first Soyuz launch following the Aug. 24 failure of an unmanned Progress resupply spacecraft. During that failed launch, shortly after the third stage was ignited, the vehicle commanded an engine shutdown due to an engine anomaly. The vehicle impacted in the Altai region of the Russian Federation.

The failed third stage engine, the RD-0110, also is part of the Russian Soyuz vehicle that launches astronauts and cosmonauts to the space station. Russian Federal Space Agency, or Roscosmos, officials established a commission to investigate the engine system, as the safety of the future crew members became top priority. NASA also launched an independent evaluation.

Because the Marshall Space Flight Center is considered an expert in the field of propulsion, a Marshall-led engineering team was asked to determine if its studies resulted in the same findings as the Russian commission.

The Marshall team of Steve Hanna, Jim Hulka, Matt Smith, Michael Martin, Joe Leahy and Mark Rogers joined others from the Johnson Space Center to create a fault tree to find the probable root cause of the failure based on their understanding of the RD-0110 engine system and information provided by Roscosmos. The team assessed various failure scenarios on the fault tree using engine modeling and simulation to compare expected engine performance trends with the Russian findings. Members of the team visited the Chemical Automatics Design Bureau in Voronezh, Russia, that manufactures and tests the engine.

"We were given the opportunity to witness a test of one of the suspect engines," said Hanna, a Marshall propulsion engineer who led the independent investigation team. "We also conducted three rounds of formal questions-and-answers with the Russians."

The four-week, fact-finding mission ended with the NASA team agreeing with the Russians -- blockage by contamination in

the engine resulted from an escape or deviation from the approved processes was the most probable cause of the failure.

"We had no reason to dispute the Russian commission's finding," added Hanna. "We also agreed the failure was not related to a design flaw considering the engine has a very successful flight history and no recent design or manufacturing changes."

Hanna said it was a great experience working with the International Space Station Program and Russian team to get the Soyuz back to flight. "I feel like we have better insight into Russian engineering and manufacturing."

For more information about the International Space Station and its crew, visit http://www.nasa.gov/station.

To follow Twitter updates from Expedition 28-29 crew member Fossum, visit http://twitter.com/astro_aggie.

To follow Twitter updates from Expedition 29-30 crew member Burbank, visit http://twitter.com/AstroCoastie.

Meggs, an AI Signal Research Inc. employee, supports the Office of Strategic Analysis & Communications.

› Back to Top

NASA's Pegasus Barge Sets Sail on Last Scheduled Mission
By Sanda Martel

NASA's Pegasus barge, which transported space shuttle external tanks from NASA's Michoud Assembly Facility to the Kennedy Space Center during the space shuttle era, set sail Nov. 10 on a different mission.

Image left: Tugboats maneuver the Pegasus barge through Port Canaveral after leaving Kennedy on Nov. 10. (NASA)

Departing on a journey scheduled to be its last, Pegasus is delivering space shuttle main engine ground support equipment from Kennedy to NASA's Stennis Space Center, where both the barge and shuttle equipment will remain in storage until their specific future uses are determined. Pegasus is expected to arrive at Stennis on Nov. 16.

The barge and equipment relocation are the responsibility of the Shuttle-Ares Transition Office at the Marshall Space Flight Center. That office is charged with identifying propulsion hardware, property, facilities, records and artifacts associated with the 30-year Space Shuttle Program's property and determining whether it will be retained; or donated to qualified U.S. institutions, public museums and libraries; or disposed.

Some hardware is being preserved for use in the Space Launch System, the heavy-lift rocket program that has replaced the Ares program. Engineers at Marshall are leading design and development of the system for NASA. The rocket will carry the Orion spacecraft, crew, cargo, equipment and science experiments to space that will expand human presence beyond low-Earth orbit and enable new missions of exploration across the solar system.

"This represents an important milestone in our journey to transition space shuttle hardware to the Space Launch System program," said Roy Malone, manager of Marshall's Shuttle-Ares Transition Office. "This hardware is important to the success of the new Space Launch System and we continue working to transition other shuttle hardware that will be needed

by the new program," he added.

The shuttle main engine ground support equipment was used at Kennedy to install shuttle engines into the orbiters. The equipment, which will be used in the Space Launch System engine testing program, is being relocated to free up space at Kennedy for other purposes. The Pegasus barge, which will remain in storage at Stennis, will be maintained by Marshall's Transportation and Logistics Engineering Office until its future use is determined.

Pegasus departed Kennedy manned by a crew of three seamen and one technician and towed by NASA's space shuttle solid rocket booster recovery ship Freedom Star.

The 266-foot-long, 50-foot-wide Pegasus barge was specially designed and built for the 900-mile sea journey of inland and open ocean waterways between Michoud -- where shuttle external tanks were manufactured -- and Kennedy -- where the external tanks were attached to solid rocket boosters and the orbiter for launch. The barge sailed 41 times and delivered 31 space shuttle external tanks -- ET-103, ET-105, ET-106, ET-108, ET-110, ET-111, ET-113 and ET-115 through ET-138 -- during its operational life between 1999 and 2011.

Pegasus was delivered to NASA in 1999, commissioned to replace the existing NASA barge Orion. After service with Pegasus began, NASA's other barge, Poseidon, also was retired. At the time of their respective retirements, both Orion and Poseidon were approaching the end of their useful lives without major refurbishment. Beginning in 2002, Pegasus became the only barge used to transport external tanks and is the only barge of its type remaining in NASA's inventory.

Both Orion and Poseidon were originally constructed in the 1940s to support America's World War II effort and were converted in the mid-1960s for use in NASA's Apollo Program when the Saturn rocket second stage, the S-II, manufactured in California, was shipped to the Mississippi Test Facility, now Stennis, via the Panama Canal.

Martel, an AI Signal Research Inc. employee, supports the Office of Strategic Analysis and Communications.

› Back to Top

A Paw of Thanks

Kassandra Stephens, a cooperative education student in Marshall Space Flight Center's Engineering Directorate, gets some puppy love during a Combined Federal Campaign bus tour of the Greater Huntsville Humane Society on Nov. 2. The tours provide Marshall Center team members with a first-hand look at how their CFC contributions help area organizations. During the tour, participants got to hear more about the facility and visit with the animals available for adoption. (NASA/MSFC/Given)

Three pretty felines lounge in the “cat room” at the Greater Huntsville Humane Society. The shelter offers a place to stay for homeless and unwanted animals, and conducts an adoption program to place them into proper homes. The nonprofit organization solely relies on donations, fundrasiers and adoptions to keep its operation going strong. (NASA/MSFC/Given)

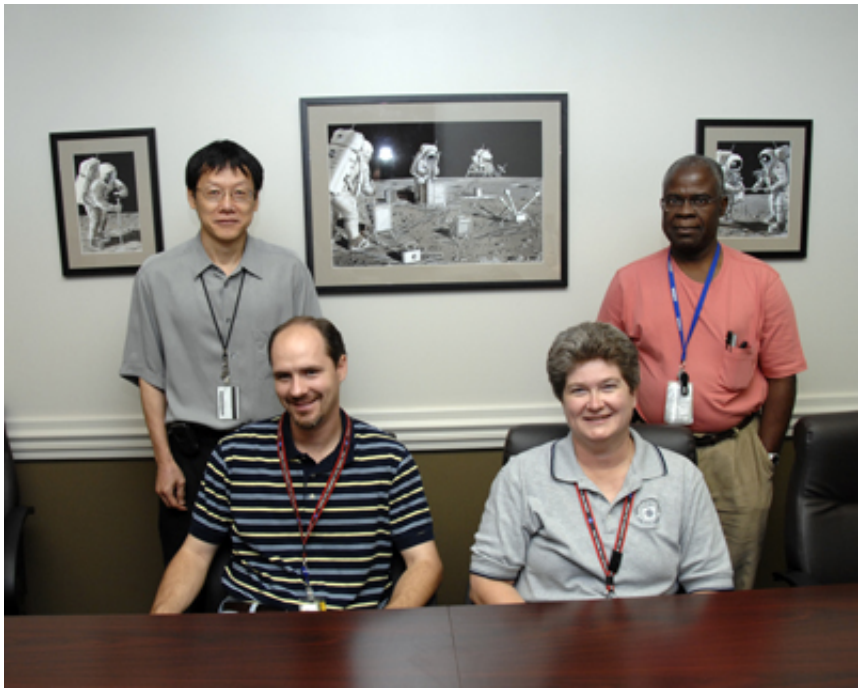
A curious pup sniffs out some paw prints -- and a bag of lunch -- at the Greater Huntsville Humane Society. To make a CFC donation to the humane society or other charitable organizations, visit http://cfc.msfc.nasa.gov/. The contribution deadline is Dec. 16. (NASA/MSFC/Given)

From left, Mark King, assistant manager of Marshall's Science & Technology Office; Carol Jacobs, an engineer in Marshall's Mission Operations Laboratory; and Marshall Center Deputy Director Gene Goldman learn more about the humane society's thrift shop from society employee Loretta Satterfield. Clothes, furniture and jewelry are among the items for sale at the shop, with proceeds going to help support the shelter. (NASA/MSFC/Given)

The Marshall Center's 2011 Combined Federal Campaign runs through Dec. 16. So far, Marshall's work force has contributed $367,092 toward the center's $700,000 goal.

› Back to Top

Dreams to Reality: Marshall Team Wins Tech Briefs 2011 Transportation Award With 'Crazy New Idea'



A team of NASA scientists and engineers has been awarded first prize in the Transportation Category of the 2011 NASA Tech Briefs “Create the Future” Design Contest for development of a method of using forward-facing, or counter-flowing, cold-gas jets to reduce shock waves and thermal environments encountered by launch vehicles and aircraft during ascent, atmospheric flight or spacecraft re-entry.

Image left: Original contest team members are, front row from left, Victor Pritchett and Rebecca Farr. Back row from left are Ten-See Wang and Endwell Daso. (NASA/MSFC)

"The method employs supersonic or subsonic cold-gas jets placed on the nose or other strategic locations of the vehicle, ejecting into the oncoming free stream," said Dr. Endwell Daso of the Aeronautics Research Mission Directorate at NASA Headquarters, and one of the contest team members. "Depending on free-stream conditions and the ejected mass-flow rate of the counter-flowing jets, the vehicle bow shock is moved upstream, with increasing standoff distance, or strongly dissipates into striations of compression waves at very low flow rates in the long penetration mode of the jet."

This innovation was the result of a technology development project sponsored by the Marshall Space Flight Center's Technology Transfer Office. Pretest computational fluid dynamics analysis and model and nozzle design tasks were followed by a wind tunnel test at Marshall's Aerodynamic Research Facility 14-inch Trisonic Wind Tunnel in December 2005. Results were reported in the AIAA Journal, Vol. 47, Number 6, in June 2009. The team applied for a patent later that same year.

The original team includes Daso, Dr. Ten-See Wang of the Propulsion Systems Department in Marshall's Engineering Directorate, and Victor Pritchett and Rebecca Farr, both of the Spacecraft & Vehicle Systems Department in the Engineering Directorate.

Recently the informal team has grown to include collaborators in industry, academia and at other NASA centers. Dr. Kenneth Plotkin, chief scientist at Wyle Laboratories in Alexandria, Va.; Dr. Chau-Lyan Chang at Langley Research Center; and Drs. Gary Chih-Hsiung Cheng and Balaji Shankar Venkatachari of the University of Alabama in Birmingham, are now all studying the counter-flowing jet.

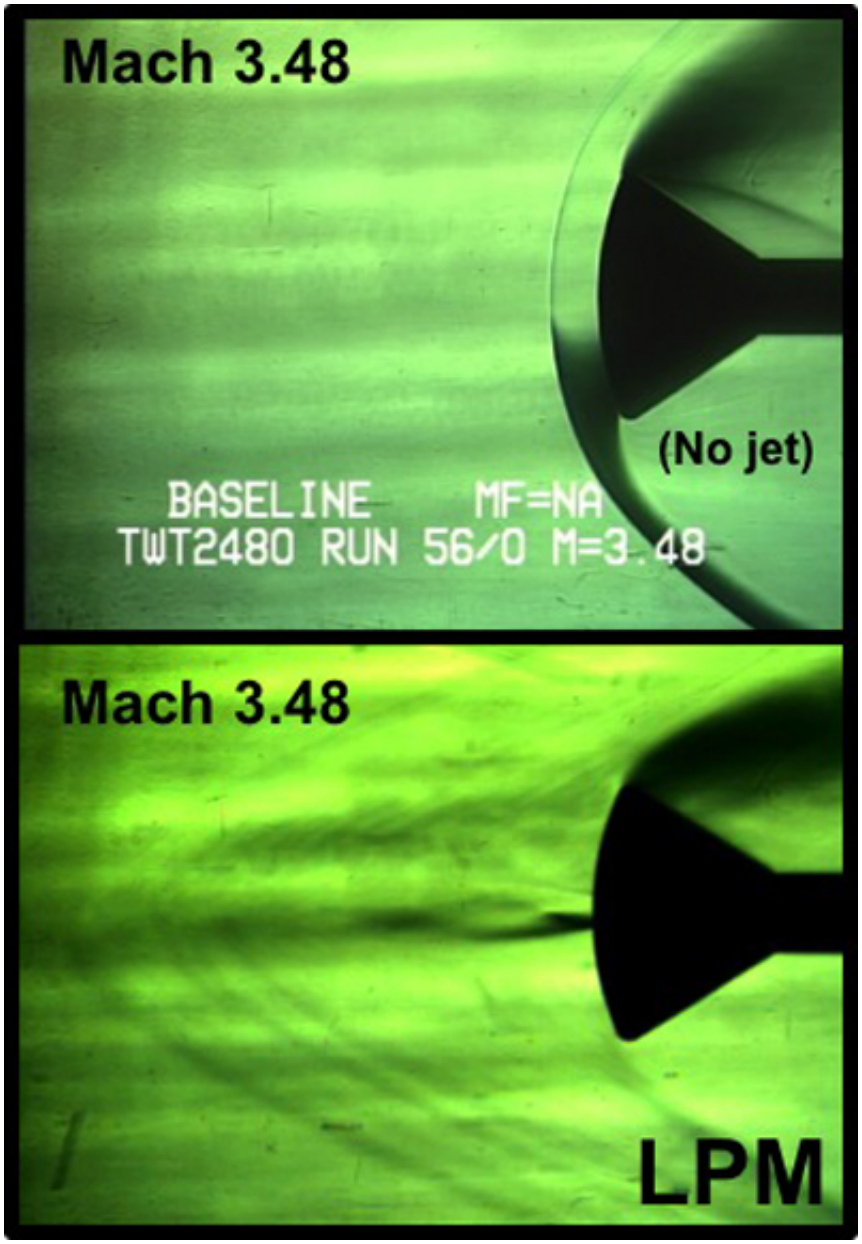


Image right: Wind tunnel schlieren images show weakening of blunt body supersonic shock waves at Mach 3.48, caused by the influence of the counterflowing, cold-gas jet in Long Penetration Mode. Top image is a baseline case without jet. Bottom image shows cold-gas jet diffusing the supersonic shock. This test was conducted in Marshall's 14-inch Trisonic Wind Tunnel in 2005. (NASA/MSFC)

Using a unique computational fluid dynamics, or CFD, space-time conservation element, solution element, or CESE, code, Chang, Cheng and Venkatachari recently published results in paper AIAA-2011-4030 that are in excellent agreement with the 2005 wind tunnel test data. The CFD analysis is continuing and study of the counter flowing jet is being used to validate the CESE code. In addition, Plotkin has used the initial CFD results to assess the jet's effects on sonic boom propagation and predicted a lower boom signature.

"This concept is not only counter-flowing, but also counter-intuitive," said Farr. "We are hopeful winning this contest will raise awareness and acceptance of this new technology concept. We are very appreciative of this opportunity to describe our work to a larger audience.

"This is very good example of how a relatively small investment in a new 'crazy idea' can generate a great deal of subsequent research and significant unanticipated benefits as a result," she added. "This is how a new technology development program should work."

The “Create the Future” Design Contest was launched in 2002 by the Tech Briefs Media Group to help stimulate and reward engineering innovation. The annual event has attracted thousands of product design ideas from engineers, entrepreneurs and students worldwide.

A panel of 26 judges from numerous corporations determined the winners of the contest. The November, Vol. 35, No. 11, issue of NASA Tech Briefs magazine has more information about the winners and the contest in general. Farr accepted the award on behalf of the team at an awards dinner in New York City on Nov. 4.

› Back to Top

Veterans Meet and Greet with Senior Management

Marshall Space Flight Center senior managers joined Col. John Hamilton, Garrison commander of Redstone Arsenal, to honor Marshall team members and retirees who serve or have served in the U.S. military during a reception Nov. 10. The event was hosted by Marshall's Office of Diversity & Equal Opportunity. Hamilton, left, thanks Ralph Young -- an Air Force veteran who is a technician in the Engineering Directorate -- for his service. The Garrison commander spoke at the event, focusing on not only remembering our veterans but also remembering that their hard work and sacrifice were worth it for our country. (NASA/MSFC/Emmett Given)

Find this article at:

http://www.nasa.gov/centers/marshall/about/star/index.html